

## WHY DOES CANCER ATTACK THE FACE.\*

By ANSTRUTHER DAVIDSON, M. D., Los Angeles.

Cancerous affections of the face are generally grouped into two classes: the ordinary squamous celled form usually found on the lower lip, and the basal celled or superficial form which for the purpose of this discussion may all be classed under the general term rodent ulcer. As the various authorities differ considerably as to the relative importance of the pathological findings, I feel less hesitation in grouping them in this manner.

Why rodent ulcer should be more common on the face than anywhere else has long been a subject of discussion, and on the general causes most authorities are in accord, but no very rational explanation has been forthcoming as to why rodent ulcer attacks most frequently certain parts of the face. As I have a theory as regards this, I wish to try it out on my fellow members and have their opinion on the subject.

Irritation of any kind is the prime factor in the production of cancer on the skin or anywhere else. The liability of X-rays and chemicals of the hydrocarbon series to produce rodent ulcer is well known. In the valley of Kashmir the natives are liable to cancer of the abdominal wall on account of their wearing the Kangri basket next to the skin, as a means of attaining artificial warmth.

Exposure to the sun and elements, particularly the sun, is an undoubted cause; the majority of our cases here are found in those individuals engaged in out-of-door occupations. Unna used to consider seamen were liable to a particular form of facial cancer.

A few years ago I saw in one of the Chicago clinics a man with five rodent ulcers on the right side of his face. Such a markedly unilateral development naturally suggested a special cause. The man, now 60 years of age, had been all his life a locomotive engineer and the ulcers were probably wholly due to the exposure of the right side of his face to the elements, and the irritating products of the smoke from the coal consuming engine.

Of all external sources of irritation, probably the sun is the most potent. Here in California it seems to me the number of rodent ulcers seen are entirely out of the normal proportion to all other skin diseases. Our climate is somewhat different from most of the States in the Union, and some general diseases common elsewhere are rare with us. Acute straight bronchitis, for example, is almost unknown here.

In skin diseases at present statistics give no reliable data. In rodent ulcer this is particularly so, as so many of its subjects are recent immigrants to the state that proportional statistics give us no data that would show the influence of the sun in the production of cancer of the skin.

While we concede, then, that the sun's rays are the exciting cause of rodent ulcer, there are other and more important factors underlying, for while we are almost all equally exposed to the sun's rays,

but a comparatively small proportion suffer from cancer.

Here is a diagram on which I have marked the point of origin of the last 100 cases I have seen. Now draw a line across the nose at the junction of the lip and nose, and note that 94% are above that line. Then draw a line parallel thereto across the middle of the nose where the shadow of the ordinary hat ends, and 78% are above that line. Note then that the part of the face best protected from the sun is most subject to rodent ulcer; so that the solar irritation theory does not fully explain the peculiar distribution of cancer on the face.

Let us look on the subject from the other standpoint, the type of individual liable to cancer. As a general rule rodent ulcer is mostly found on individuals of a spare habit of body. Men of spare habit, though seemingly strong and wiry, are almost invariably the subject of some form of digestive disturbance, or subject to some disease that affects the metabolism of their food; they are all sufferers from mal-assimilation in some form or other. Of these mal-assimilants there are two well-marked types, the "rough neck" and the "atrophic skin." The "atrophic skin" presents a depigmented pale or bluish look and not infrequently closely resembles the skin that has been affected by leucoderma. This condition of the skin is most frequently associated with seborrhea of the scalp and thinning of the hair. Pathologically the whole skin is thinned and the subcutaneous fat reduced. In the "rough neck" type the man, once stout, has become thinner. The true skin, originally coarse, remains almost unaltered, but the subcutaneous fat has so diminished that the now overabundant covering in accommodating itself forms heavy folds and creases. You scarcely ever see rodent ulcer on the full blooded and empurpled face, or on those with a comfortably lined circumference.

Of those rodent ulcers depicted in the diagram shown, 95% were in individuals of a spare type of body.

These general remarks simply lead up to the point I wish to emphasize in this discussion.

Look again at this diagram and observe that certain regions are very frequently affected, and some are almost exempt. The region of the beard even in these days of smooth faces is practically exempt, the cheeks except on the malar process nearly so. The upper eyelid is free. I have never seen cancer on the upper eyelid, while the lower of apparently the same texture is quite frequently attacked. That is a fact curious and pertinent. The rim of the ear is not infrequently affected, 6% of those seen by me were in this situation.

For this peculiar distribution a curious theory was put forward by Dr. Evans of London many years ago. He attributed the partiality of cancer for certain localities to the presence of abortive lachrymal glands upon the parts of the face corresponding to the sites in which these glands exist in the higher mammalia, sheep, deer, etc. These glands are highly differentiated glands of an acinous or glandular type, and fetal residues in man may probably exist. This theory is a more definite adaptation of the "embryonic rest" theory that has

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been applied to cancer in general. The distribution of these lachrymal glands correspond quite closely to the distribution of rodent ulcer on the face.

My theory is that those regions are most subject to rodent ulcer that are least mobile, and consequently least vitally nourished. The growth of the beard or the use of the razor stimulates the functional activity of these parts. The cheeks are active in mastication; the upper lid does practically all the dusting of the eyeball. The cutaneous structures at the corner of the eye, the nose itself, the ears and malar prominences have no underlying muscles, no mobility, no stimulation to activity. If the abortive gland theory were correct both sexes ought to be equally affected, but according to my figures only 12% were found in women. This disparity between the sexes is to be accounted for in part by the greater care expended on the face by women. The copious use of facial creams, frequent massage, etc., maintain a greater vitality in the skin. Then, too, women are endowed with an extra layer of adipose that still further maintains the tonicity of the skin.

The more degenerate, or the less vital the structure, the more the liability to cancer. In the general atrophy of the skin incidental to old age, those places devoid of all subcutaneous mobility are most liable to rodent ulcer. That seems to me the most plausible explanation of the peculiar distribution of facial cancer.

## EVOLUTION IN THE STUDY OF THE HEART: A SURVEY.\*

By HARRY I. WIEL, M. D., San Francisco.

Privilege indeed it is to live in a renaissance period. When we stop to consider how for centuries medicine has stood ineffectual in the face of the morbid heart, groping here and there for light in the midst of darkest ignorance and unable to attain any efficiency in this field, it is a great satisfaction to know that our own times have finally opened up new paths to knowledge and treatment of chronic heart disease. Dealing with the history and evolution of this matter, tracing the various steps by which this decidedly advanced and new knowledge has been attained, has proved a study of great fascination to the writer and it may be that the readers of this sketch will experience like enthusiasm in following this evolution with him, from ancient days to now.

Concerning the earliest years there is little to note in the way of progress. The views of Hippocrates, Aristotle and Galen held sway for centuries. These recognized the heart, arteries and veins and included in the system we now know as circulatory, the liver. There were supposedly two bloods, the natural and vital, in two closed systems, the veins and arteries. The liver was regarded as the central organ of the venous system, in which chyle was converted into blood, and from which it was distributed by the veins to the various parts of the body for nourishment. The struc-

ture of the heart and the direction in which the blood passed was known, but the chief function of the organ resided in the left ventricle where the "vital spirit" was created, a mixture of inspired air and blood. By alternate dilatation and collapse of the arteries, this mixture was kept in constant motion. Allowance was made in this scheme for a small amount of blood going from the right side of the heart to the lungs for their sustenance, and thence back to the left side of the heart. There was, however, no conception at all definite of the pulmonary circulation as such; in fact the main communication between the two sides of the heart was supposed to be by means of pores between the meshes of the interventricular septum.

Such in outline was the accepted idea of the cardio-vascular system which prevailed for centuries. It remained for that extremely fascinating character in the history of medicine, Michael Servetus of Villanova, Spanish born, theologian and scientist of continental Europe, the valiant and splendid heretic, contemporary of Vesalius, to make the first enlightened contribution. Sir William Osler, in a masterly biographical sketch of the man, has brought together with inimitable excellence, our knowledge of Servetus, and this society is indebted to the Regius Professor of Medicine in Oxford, for a reprint of that portion of the fifth book of "Christianissimi Restitutio" which contains the important scientific work of Servetus.

In this theological work, Servetus, in a few paragraphs, gives the now noted description of the lesser circulation. These facts he most probably discovered from dissection in the anatomical laboratory, for there is no record of any such thing in this affair as observation from the living organism. To Servetus himself, and to his contemporaries, the matter seemed of little import, and as far as clearing our ignorance in the problem of the circulation, it surely was of little significance. Literature does not remark much stir in scientific circles following this discovery. A certain Colombo a few years later announced the same observations with the addition of noting that the blood became mixed with the inspired air in the lungs and not in the heart, but all these things caused no more commotion than the contribution of Servetus himself. The influence of Galenical teachings was still rampant, and Servetus's work was allowed to remain hidden until after the publication of the greater work of William Harvey, nearly 100 years later. Charles Bernard, a surgeon of St. Bartholomew's Hospital in London, called the attention of William Wotton in 1697 to the important work of Servetus which had so long lain obscure, and Wotton in turn gave it to the world with the emphasis it deserved.

Had the discovery of the lesser circulation been heralded, one might think that it paved the way for the epoch making investigations which were to come, but we are justified in saying that until the time of Harvey, scientific investigation of the heart and blood vessels was a blank. Outside of the counting of the pulse in the arteries as early as 1464 by one Cardinal Nicolaus Cusanus using a *Wasseruhr*, we have little or no record of observa-

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